In re Application of: Amir BARZILAY et al
Serial No.: 10/590,477
Filed: August 24, 2006
Office Action Mailing Date: January 29, 2010

Examiner: HELLING Kaitlyn Elizabeth
Group Art Unit: 3739
Attorney Docket: 32110
Confirmation No.: 8675

REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-8, 12, 16-18, 25-28, 33, 37-39, 48, 54 and 301-306 are in this Application. Claims 9-11, 13-15, 20-24, 29-32, 34-36, 40-47, 49-53, 55-69, and 71-300 have been canceled in a previous response. Claims 19 and 70 have been canceled herewith. Claims 1-7, 16, 18, 19, 25-28, 37, 39, 54, 70, 301 and 302 have been rejected. Claims 8, 12, 17, 33, 38 and 48 have been objected to. Claims 1, 4, 5, 6 and 25 have been amended. New Claims 303-306 have been added.

Summary of Interview

Applicants thank the Examiner and Supervisory Patent Examiner (SPE) for the courteous interview granted applicants representatives on February 23, 2010. At the interview applicants' representative explained the differences between the claims and the art applied by the Examiner. Applicants' representatives presented three different distinguishing features pertaining to frequencies, temperatures and vibrations. Applicants' representatives stated that the applied art fail to teach these features, particularly in the context of acoustic waves which are transmitted through the hair shaft. The Examiner and SPE indicated that at least the features pertaining to the frequencies and temperatures would likely be sufficient to obviate the rejection.

35 U.S.C. § 112 Rejections

Claims 4, 5 and 6 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that it is unclear as to whether the wave condenser performs the gripping step or if there are two separate structures gripping and condensing.

Claims 4, 5 and 6 have been amended to explicitly define the gripping as being done by the wave condenser. Support for this amendment is found, for example, in page 21 line 28.

In light of this clarification, Applicants respectfully request withdrawal of the 112 rejection.

35 U.S.C. § 102 Rejections

The Examiner rejected claims 1-3, 7 and 25 under 35 U.S.C. § 102(b) as being anticipated by Iger. The Examiner refers to page 19, lines 3-20 of Iger and states that Iger teaches transmitting acoustic waves through the hair so as to generate heat at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix, said heat being in itself sufficient to damage or destroy said follicle, dermal papilla, hair bulge and/or said germinal matrix.

The Examiner's rejection is respectfully traversed. The following remarks relate primarily to the independent claims. The dependent claims are patentable at least by virtue of their dependency on their parent claims.

Claims 1 and 25 include, among other features, the feature that the acoustic waves that are transmitted through the hair are at a frequency of from about 150 kHz to about 1300 kHz. It is submitted that Iger does not teach this feature, from the following reasons.

Iger discloses two major modes of operations for hair removal: "a focal beam epilation" (see, *e.g.*, page 5 lines 14-15) and "hair wave-guide epilation" (see, *e.g.*, page 6 lines 18-19). These two modes are completely different. In the focal beam epilation mode, a focused ultrasound beam is directed to the skin such that the focal point of the beam is at the hair root. This mode is different from the claims because there is no transmission of ultrasound waves through the hair. It is emphasized that Iger explicitly teaches that in this mode "the ultrasonic focus beam is used directly to heat and destroy the follicle papilla from outside, i.e. without using the hair as a wave guide" (Iger at page 16 lines 21-23, emphasis added). According to Iger, the focal

beam epilation should be employed at frequencies in the MHz region (page 16 line 19).

In Iger's hair wave-guide epilation mode, the hair is used as a waveguide. However, Iger teaches that for this mode the frequencies should be much higher. Specifically, Iger teaches for this mode a frequency of 5 MHz (17 line 29) since this reduces attenuation (page 18 lines 5-6). These frequencies, however, are more than 3 times higher that the claimed frequencies. Thus, although Iger teaches frequencies spanning over an enormous range (3 orders of magnitude), he teach frequencies outside the claimed range when it comes to the hair wave-guide epilation mode. In this respect, it is submitted that Iger does not constitute an anticipation under the statute at least for the combination of features recited in the claims, since the range of frequencies disclosed in Iger is not sufficiently specific for the claimed range.

It is therefore submitted that claims 1 and 25 are patentable over Iger, since Iger does not teach transmitting acoustic waves at a frequency of from about 150 kHz to about 1300 kHz through the hair.

35 U.S.C. § 103 Rejections - Iger

Claims 26-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Iger. The rejections is respectfully traversed. Claims 26-28 depend from claim 25 and are therefore submitted to be allowable together with that claim.

35 U.S.C. § 103 Rejections - Iger in view of Zanelli

Claims 16, 18, 37, 39 and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Iger in view of Zanelli.

The rejections are respectfully traversed. Claims 16, 18, 37, 39 and 54 are submitted to be allowable at least by virtue of their dependencies. It is nevertheless noted that many of these claims set forth even further distinguishing features.

For example, claims 16 and 37 include the feature that the generated heat results in a temperature increment of at least 20 degrees centigrade. The Examiner acknowledges that Iger does not teach this feature but holds that it would have been

obvious to one having ordinary skill in the art at the time of the invention to have generated heat of at least 20 degrees centigrade as Zanelli teaches that at least 55 degrees centigrade is required to kill any cells with the follicle or the dermal papilla.

Applicants respectfully disagree. Zanelli does not transmit the acoustic waves through the hair, and the skilled person would not learn from Zanelli how to increase the temperature by at least 20 degrees centigrade by transmitting acoustic waves through the hair. Therefore, even if the skilled person were to combine Iger and Zanelli (although this is denied) the skilled person would not arrive at the claimed invention, since Zanelli only teaches use of focused ultrasound and the skilled person, at best, would only be able to combine Zanelli's teaching with Iger's focal beam epilation mode.

It is emphasized that elevation of temperatures by means of focused ultrasound is rather straightforward, unlike the inventive technique in which the temperature is increased by acoustic waves that are transmitted through the hair. In fact, Iger's own experiments show that in the hair wave-guide epilation mode the epilation is mainly through torque (page 20 line 21), and that total disconnection of the hair from the follicle is by fatigue (page 21 lines 1-4). In other words, using the hair wave-guide epilation mode Iger was not able to sufficiently increase the temperature to cause thermal destruction.

New claims 303 and 304 are directed to an embodiment in which the acoustic waves are transmitted through the hair so as to increase a temperature at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair by at least 20 degrees centigrade. In light of the above arguments, it is respectfully submitted that claims 303 and 304 are neither anticipated nor rendered obvious by the cited art.

35 U.S.C. § 103 Rejections - Iger and Zanelli in view of Masotti

Claims 18, 70, 301 and 302 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Iger and Zanelli in view of Masotti. Claims 18 and 70 now canceled, rendering the rejection moot.

The Examiner acknowledges that Iger in view of Zanelli does not teach a frequency of at least 150 kHz or 500 kHz, but states that Masotti teaches that the use of frequencies in the range from a few hundred kHz to a few MHz, and typically from 100 kHz to 10 MHz makes it possible to obtain a focal spot with lateral dimensions which may be up to a few tenths of the millimeter and a longitudinal extension which may be a few millimeters.

The Examiner rejection is respectfully traversed. Masotti is similar to Zanelli in that Masotti teaches use of focused ultrasound on the area from which hair is to be removed. Like Zanelli, Masotti does not transmit the waves through the hair. Masotti teaches that the most important parameter is the focusing of the beam, namely to make the beam converge toward an area of space located at a distance from the ultrasonic transducer. Since the focused ultrasound of both Masotti and Zanelli is similar to Iger's focal beam epilation mode, the suggested combination (Iger, Zanelli and Masotti) does not provide the claimed feature which is directed to a different mode of operation (transmission of ultrasound through the hair). As already stated above Iger explicitly teaches that the hair wave-guide epilation mode is only applicable for very high frequencies. Thus, to this effect, Iger teaches away from the combination, since Iger teaches away from using Masotti's low frequencies for hair wave-guide epilation.

It is therefore submitted that claims 301 and 302 are novel and non-obvious over the cited reference.

Allowable Subject Matter

The Examiner states that the subject matters of former claims 8, 12, 17, 33 and 48 are allowable.

Similarly to former claims 12 and 33, new claims 305 and 306 are directed to an embodiments in which the vibrations of the hair are low. Specifically, new claims 305 and 306 recite the feature that at least one of: a frequency, a power density and duration of transmission of the acoustic waves is selected such that a characteristic amplitude of longitudinal vibrations of the hair is below 10 μm. It is submitted that

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none of the cited references teaches transmission of the acoustic waves such that characteristic amplitude of longitudinal vibrations of the hair is below 10 μm.

In view of the above amendments and remarks it is respectfully submitted that the claims are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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Date: April 28, 2010